

American Society for Testing Materials BULLETIN

ISSUED



BI MONTHLY

An Active Membership

NO TECHNICAL SOCIETY can be stronger than its membership. A strong virile Society must have active members, active in advancing its work, in furthering its purposes, in increasing its usefulness through utilizing its services, and in bringing in new active members, who will make possible even greater accomplishments and who themselves will profit through membership in the Society.

Our Society has been particularly fortunate in this, and much of its success has been due to the interest and cooperation of the individual member. It is this interest and cooperation that we wish to maintain, and we look to the members to continue in the building up of the Society's strength and usefulness.

November, 1927

ENGINEERS' CLUB BUILDING
1315 SPRUCE ST., PHILADELPHIA

OLSEN

Universal Testing Machine

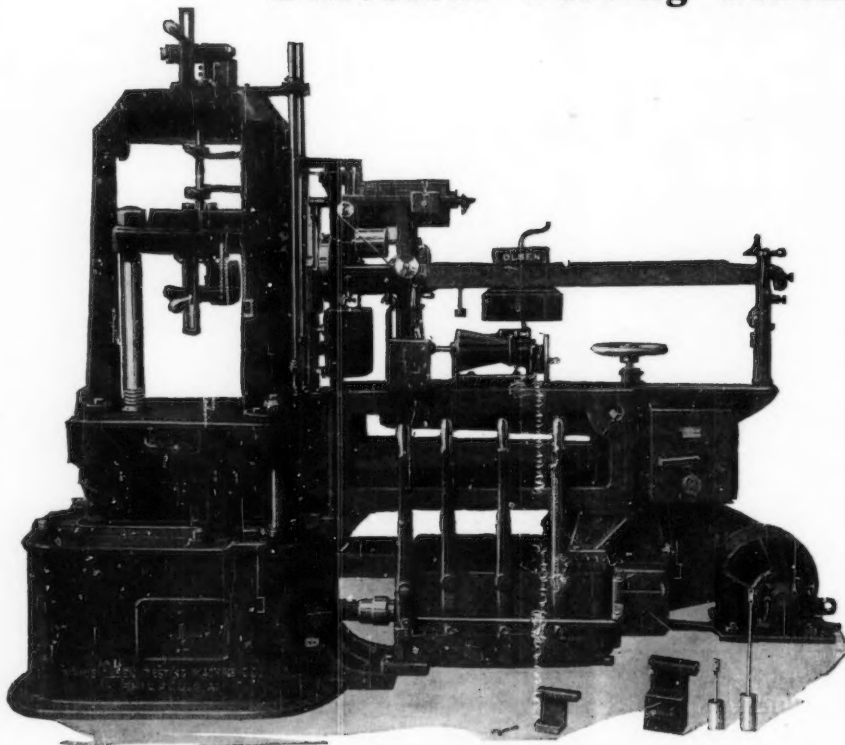


Plate 1086

This illustration represents the last word in testing machine construction. A completely Automatic and Autographic Universal Testing Machine for all tests, and of triple capacity. A machine provided with our latest Automotive Drive, having eight speeds and reverse, and with all fast speed gearing entirely enclosed, running in a bath of oil and ball bearing mounted. Also arranged for hand operation, and provided with automatic indicator showing operator speed of head at all times.

Olsen Universal Testing Machines are made in either four or three-screw type, and of either rotating gear nut or rotating screw type of gearing.

For strength, stiffness and endurance, as well as for facility in making tests the rotating gear nut type of machine is recommended. For all Universal Testing Machines above 200,000 lb. capacity and up to 2,000,000 lb. capacity, and for structural materials testing, we recommend the four-screw type of testing machine, both from an engineering and practical point of view.

Olsen Hydraulic Testing Machines may be secured for tension or compression, or universal testing if desired up to 20,000,000 lb. capacity. Such machines are provided with scale beam lever weighing systems to insure accuracy and reliability in weighing loads to capacity.

Among the latest up-to-date testing equipment as manufactured and distributed by us are the following:

*Herbert Pendulum Hardness Testers,
Olsen-Smith Autographic Stress Strain Instrument
Haigh Alternating Stress Testing Machine
Honda Sharpness Tester*

Further information and details as to this equipment on application.

VISIT OUR BOOTH AT THE POWER SHOW, GRAND CENTRAL PALACE, NEW YORK CITY, DECEMBER 5th to 10th, WHERE WE WILL DEMONSTRATE SOME OF OUR VERY LATEST OLSEN TESTING AND BALANCING MACHINE EQUIPMENT.

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American Society for Testing Materials



BULLETIN

ENGINEERS' CLUB BUILDING

1315 SPRUCE STREET

PHILADELPHIA, PENNA.

NUMBER 29

November 28, 1927

1928 Annual Meeting in Atlantic City

ATLANTIC CITY has been chosen by the Executive Committee of the Society as the place for holding the 1928 annual meeting. The meeting dates are June 25-29. The meetings will be held at the Chalfonte-Haddon Hall.

The holding of our 1927 annual meeting in the Middle West proved quite successful and doubtless other meetings will be held there in the future. The committee felt that it would be well to return to the East for the 1928 annual meeting and Atlantic City appealed to the committee as being the most desirable location.

The possibilities of the several hotels in Atlantic City for successfully handling a meeting of the Society were looked into and the Chalfonte-Haddon Hall seemed to offer the best facilities, particularly after arrangements were made to place two assembly rooms in one building at the disposal of the Society for holding simultaneous sessions. The Vernon Room in Haddon Hall will again be the main meeting room, and sessions convened simultaneously with those in the Vernon Room will be held in the Garden Room adjoining the Vernon Room, instead of in the Music Room of Chalfonte, as heretofore. This will help greatly in concentrating the activities of the meeting under one roof.

With the usual facilities such as for meetings and registration the members are familiar, as well as with the possibilities for entertainment and enjoyment. Arrangements can readily be made for taking care of the golf and tennis tournaments and Atlantic City, as "the playground of the world," offers many opportunities for entertainment.

Shortly after the first of the year further announcements will be made regarding the meeting including a statement concerning the rates that will apply during the meeting. Plans are being worked out with the hotel management that are expected greatly to facilitate registration and the making of reservations. Details of these plans will be announced at a later date.

The Value of Membership

Many times these columns have emphasized the importance of increasing the membership, for increased membership means increased support for the Society's work, both by increasing its revenue and by adding additional supporters and active participants. There have been so many demands made upon the Society that an increased revenue became a necessity, and industry, as deriving the greatest benefit, was appealed to for increased support, which resulted in an amendment of the By-laws, increasing the yearly dues of firms, companies, corporations, etc., to \$30. This increase is to become effective next year. In response to a letter addressed to the members involved, quite a number of replies have already been received indicating that this appeal is meeting with hearty response by industry. A letter received from one of our mid-western members is typical:

"In reply to your letter will say that we are comparatively a small concern from a financial standpoint and we should like to effect the saving which might be had by transferring our membership to an individual, but after giving the matter careful consideration we have concluded to leave our membership stand as it is and pay the additional dues amounting to \$30. This action upon our part will not only contribute to the financial support of the Society but may act as an incentive for similar concerns to add their support likewise. We place quite a high valuation upon the assistance which our connection with the Society may amount to and are glad to lend every possible assistance for its continued success."

If the very cordial response so far indicated is general, the needed increased financial support will be assured. But so long as there are still so many who it would seem must be interested in the Society's work and who undoubtedly would benefit through membership in the Society, but who as yet are not members, redoubled efforts should be made to secure them as members. This is every member's responsibility, to acquaint all those who should be members with the value of holding membership.

Application blanks for membership are always available. They are bound in the back of the Year Book and at the back of each Part of the Book of Standards. If this supply is exhausted, additional blanks may always be had upon application to the Society headquarters.

1928 Annual Meeting Atlantic City, N. J., June 25-29

International Congress for Testing Materials

The first International Congress for Testing Materials since the World War was held in Amsterdam, September 12 to 17. This Congress was arranged by an organization committee of Swiss and Dutch engineers and manufacturers who felt that the work of the old International Association for Testing Materials, whose activities were discontinued as a result of the war, should again be taken up. As a consequence delegates had been called for from all the countries formerly active in testing work. Announcements concerning the Congress appeared in earlier issues of the A.S.T.M. BULLETIN. The Congress proved to be quite a success with over 450 in attendance, a cordial spirit pervading all of the discussions. The United States took quite an active part; the Society was officially represented by Past-President W. H. Fulweiler and Vice-President T. D. Lynch; and in all there were 11 from this country who attended. Eighteen of the 85 papers presented were by American authors.

Of primary interest, of course, were the discussions on the possibility of reviving the old International Association for Testing Materials. A meeting of the delegates was held in advance of the Congress at which the views of the representatives of the various countries were expressed. This meeting was attended by 32 delegates representing 17 nations as follows: Germany, United States, England, Austria, Denmark, France, Holland, Hungary, Sweden, Switzerland, Czechoslovakia, Spain, Italy, Norway, Rumania, Russia and Belgium. There were differences of opinion, some feeling that the old International Society should be reorganized in its old form, others believing that no attempt should be made to organize a formal society but that international congresses held periodically would suffice. Similarly, there was some difference of opinion as to whether standardization work should be attempted. It was decided that an international society be organized in some form and a special committee of seven members was appointed which reported at the plenary session held toward the close of the Congress at which time a suggested constitution was submitted. The constitution was adopted in the form given below:

Proposed Constitution of the International Association

1. The name of the Association shall be "The New International Association for the Testing of Materials."

2. The objects of the New Association shall be to secure international cooperation, exchange of views, experience and knowledge in regard to all matters connected with the Testing of Materials. The principal means of securing this result is to be the holding of periodical International Congresses at intervals of not less than three or more than five years, so far as circumstances permit. The New Association shall, however, be free to adopt other additional methods of securing and maintaining international contact as circumstances may suggest. Questions of standardization of materials are to be regarded as being outside the scope of the Association.

3. I. Individual membership of the New Association shall be open to all persons interested in the Testing of Materials who are:

(a) Members of a National Association for Testing Materials; or

(b) In countries where there is no National Association for Testing Materials, those who are members of a recognized Scientific or Technical Society.

II. Companies and Corporations who are members of their National Association for Testing Materials may become members of the International Association on paying not less than twice the individual subscription.

4. The individual membership subscription shall be one dollar (American).

5. The New Association shall be governed by a Permanent Committee consisting of one member from each Country having

a membership of not less than twenty in the International Association. Each member of the Permanent Committee shall be elected by his National Association or in the absence of a National Association, by some equivalent organization in that Country.

6. The Permanent Committee shall elect a Chairman and a Vice-Chairman from among their numbers who shall hold office until the next following Congress. They may also appoint sub-committees for special purposes as required.

7. The Permanent Committee shall appoint one of their number to act as Honorary Secretary. The Honorary Secretary shall conduct the correspondence of the Association, receive subscriptions and generally carry on the business of the Association at and between the meetings of the Permanent Committee. For this purpose he may employ clerical assistance, payment for which may be made from the funds of the Association by authority of the Permanent Committee.

8. It shall be the duty of the Permanent Committee to meet at least once in every year and to arrange for periodical Congresses, and to appoint or to sanction the appointment of Special Congress Committees and of Special Congress Officers (President, Vice-President, Chairman of Sections, etc.) for each Congress.

9. The Permanent International Committee shall be empowered to invite the representatives of Governments or of other Official Bodies to attend the Congress.

Since the Congress, formal invitation has been received from the secretary of the New International Association requesting American adherence to the new movement and inviting members of the Society to join the new association. These together with the Constitution itself are under consideration by the Executive Committee. It is expected that a decision will be reached at its meeting in January, when further announcement will be made to the membership.

The technical papers for the most part were divided into three groups, those relating to metallic materials, those pertaining to cement, concrete, stone and brick, and a third group covering miscellaneous materials. Sessions were held simultaneously at which the papers of these three groups were presented and discussed. In addition, four papers of a general nature were presented at two general sessions where the entire Congress met as one group. The first of these four general papers was presented by one of the Society's delegates, Mr. T. D. Lynch. He discussed "Materials Testing as a Stimulus to Research." This was an able presentation of the origin, development and possibilities of scientific testing. The paper discussed testing as a science and as an art, how accurate data were obtainable, which in their eventual application to works processes brought out astonishing developments. It further discussed what "standards" are and the extent to which standards have been developed in this country. Research work was next dwelt upon and the need for coordinating it with commercial facts and requirements. Finally, the future of testing work was touched upon and the trend toward investigations in physical chemistry with the statement that there were still many questions to be solved.

The second general paper was by Prof. A. Mesnager of Paris, on the subject of "Rupture of Solids." This was a theoretical discussion on the behavior of materials under various applications of loads with the specimens either smooth or notched.

The third general paper was by Prof. F. Kerber, Director of the Kaiser Wilhelm Institute für Eisenforschung at Düsseldorf, Germany, on "The Problem of the Elastic Limit." This paper gave an outline of theories covering the elastic limit and discussed the conditions which are necessary before elongation will begin and the mechanism of the stretching itself, the upper and lower limits of the elastic limit, and how these are affected by temperature, speed of test, and other conditions.

The fourth general paper was by Dr. W. Rosenhain of the British Government Physical Laboratories on "The Plastic

Deformation and Structure of Metals," which was a critical review of our present knowledge on the subject of plastic deformation and of the mechanism by which such deformation takes place, the way the changes of properties associated with deformation are brought about and in general what is known on the mechanism of fracture.

Probably the outstanding paper of the Congress was the one by Dr. Francis F. Lucas of the Bell Telephone Laboratories, New York City, who discussed "High Power Metallography." In this he showed the use of the ultra-violet microscope for the study of steel, lead and other metals. Dr. Lucas, by changes in the construction of the lenses in the objectives and by perfecting the preparation of test specimens, was able to get perfect pictures with enlargements of 3500 to 5000 diameters. With such increases in resolving the microstructure of polished steel surface and with the additional knowledge gained by using the ultra-violet microscope, some of our conceptions of the structure of martensite and troostite would have to undergo revision.

Many of the other papers presented were of timely interest and of extreme value as will be seen from the following list:

Papers Relating to Metals

"High-Grade Structural Steels," by Dr. Gallick, of Budapest, Hungary. In this the gradual increase in the physical strengths and elongation in these steels used for important structures in bridges and buildings was discussed, with the introduction of silicon low-carbon steels showing high strengths and elongations.

"Corrosion-Resistant Alloys," by J. A. Matthews, Crucible Steel Co. of America, presented by E. C. Bain. In this the classification of the high-grade alloy steels was given and their properties and specific uses discussed.

"Mechanical Tests of Gray-Iron Castings," by Prof. A. Portevin of Paris, France. This was a resumé of his well-known researches to determine the properties of castings by testing them as such and by means of sample bars cut from the several sections of castings by means of a hollow drill.

"A Resumé of the Development and Application of High-Power Metallography in the Ultra-Violet Microscope," by Francis L. Lucas, Bell Telephone Laboratories (mentioned above) presented by the author.

"Re-Crystallization of Metals," by A. E. Van Arkel of Eindhoven, Holland. This reported a number of experiments on the recrystallization of iron and aluminum which showed that most likely the recrystallization nuclei were to be considered as points of maximum deformation and not, as is often accepted, small crystals unaffected by deformation.

"Potential Measurements with Rustless Steels," by Dr. H. Staeger, Baden, Switzerland.

"Wear Testing of Materials," by M. Spindel, Innsbruck, Austria. The paper pointed out how little the ordinary tests for strength, elongation, etc., made on steel or other metals, revealed as to the resistance metals offered to wear. This property would have to be studied by means of special machines constructed for the purpose. The resistance to wear depends upon the surface condition of the parts in contact, whether or not a lubricant is used, the pressure applied and more particularly the rate of travel of the parts in contact.

"Hardness Testing," by W. F. Huber of Lemberg, Austria.

"Testing Hardened Steel," by A. Lundgren of Stockholm, Sweden. This covered the experimental results on the behavior of tool steel for machine shop use and covered the effect of different processes of annealing and the influence of hardening and tempering methods.

"Impact Testing on Notched and Un-notched Bars," by Dr. Phil Schwinning of Dresden, Germany. This paper showed the effect of the depth and shape of notches and of the relation of the impact test to the usual tests for strength. The paper emphasized the necessity of standardizing the notch test bar. The effect of the test speed, temperature and the preparation of the specimens were covered.

"Influence of Heat and Mechanical Treatment upon the Resistance of Materials to Repeated Stress," by H. Rabozée of Belgium.

"The Fatigue of Metals," by H. F. Moore of Urbana, Ill., presented by T. D. Lynch. This was a review of the changing concepts of stress, strain and strength. While formerly it was

supposed that under repeated stress the structure of some metals changed from what appeared to be a fibrous structure to one that was crystalline, modern investigation has shown that no crystallization occurred, but a slip along intracrystalline planes.

"Fatigue and Corrosion-Fatigue of Metals," by D. J. McAdam, Jr., of Annapolis, Md., presented by A. E. White. This paper was an elaborate presentation of tables and figures of results of fatigue tests in combination with corrosion data.

"Growth of Cast Iron at High Temperatures," by E. Honneger of Zurich, Switzerland.

"Heat-Resistant Alloys for Use in Annealing Boxes, Furnace Elements, etc.," by W. Rohn of Hanau, Germany.

"Contribution to the Study of Effects of Viscosity Under Heat, and the Application to Various Metals and Alloys," by Jean Cournot and Andre Michel of France.

"Tests and Properties of Metals at High Temperatures," by A. E. White of Ann Arbor, Mich., presented by the author. This paper gave valuable information on the subject for use by the power plant engineer who desires to use very high pressures and temperatures. The paper brought out the value of the high-chromium steels for this work.

"Durability of Nickel-Chromium Resistor Materials," by F. E. Bash of Morristown, N. J., and J. W. Harsch, of Philadelphia, Pa., presented by M. A. Grossman. This paper discussed the work being done by a committee of the A.S.T.M. to obtain accelerated tests which will demonstrate the quality of these materials with results comparable to actual service.

"The Use and Development of Magnetic Analysis in the United States," by A. V. de Forest, Bridgeport, Conn., presented by M. A. Grossman. This paper described the work of the Committee on Magnetic Analysis of the A.S.T.M.

"Our Present Knowledge Regarding Non-Metallic Inclusions in Iron and Steel," by Carl Benedicks and H. Lofquist, Stockholm, Sweden. This paper included methods of analysis of slag grains, different factors influencing the appearance of slag grains and their distribution in the metal.

"Comparative Wear Tests on Cast Iron of Various Phosphorus Content," by E. Piwowarsky, Aachen, Germany.

"Welding and Weldability," by M. Fuechsel of Berlin, Germany. This paper was a general discussion on welding and stated that a weld could be relied upon to have about 80 per cent of the strength of the rest of the metal in tension and somewhat less in bending.

"Status of the Art of Welding, Its Problems and Aims," by A. Sonderegger of Zurich, Switzerland.

"Testing and Calibration of Testing Machines," by Memmler of Berlin, Germany.

"Tests Applied in the Purchase of Rails," by L. Toutain of Paris, France.

"The Evaluation and Utilization of Data Obtained from Materials Testing," by K. Daevs of Düsseldorf, Germany.

"New Structural Steels for Buildings," by E. H. Schultz of Dortmund, Germany.

"Elasticity of Metals and Alloys," by G. Welter of Frankfurt, Germany. This paper covered specifically the testing of chains.

"The Use of Charpy Tests for Impact and Bend Testing of Certain Materials," by A. Thoma of Budapest, Hungary.

"A New Machine for Testing Hardness," by J. Pomey, Loire, France.

"A Rational Calculation of the Elements in Welded Constructions," by H. Dustin and D. Rosenthal of Brussels, Belgium.

"Italian Railway Tests of Metals Purchased Under Specifications," by A. Steccanella of Firenze, Italy.

Papers Relating to Cement, Concrete, Stone and Brick

"Problems in Connection with Reinforced Concrete," by E. Probst, of Karlsruhe, Germany. The paper brought out that tensile strength of concrete, mistakenly, is neglected in reinforced concrete construction. The problem of shrinkage is only partially solved. The behavior of concrete and reinforced concrete under repeated load is of utmost importance.

"High-Strength Steel for Compression Members (Columns and Arches) of Reinforced Concrete," by F. Emperger, of Vienna, Austria.

"Compressive Stress in Flexure," by R. Maillart, Geneva, Switzerland. The author concluded that the devices for control of grading, continuous tests of concrete, etc., are justified only on special construction where higher concrete stresses are

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AMERICAN SOCIETY FOR TESTING MATERIALS BULLETIN

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Number 29

November 28, 1927

Our Research Fund

AS the first allotment from the A.S.T.M. Research Fund, established last January in a modest way through setting aside \$1000, approximately the amount of the entrance fees received in 1926, \$50, the income from the Fund for the first year, has been appropriated to the study of test bars for cast non-ferrous alloys being carried out by Committee B-2 on Non-Ferrous Metals and Alloys. The contribution from the Research Fund is the first towards approximately \$500 which must be raised to meet the cost of permanent metal patterns to facilitate the cooperative work between the several participating members, who will contribute considerably more in the form of materials, time and service. The remainder of the sum will be raised by the committee itself.

This allotment from the Research Fund, the first to be made towards investigative work from Society funds, is significant. We are reminded of that familiar phrase: "Great oaks from little acorns grow." Looking back over the steady, substantial development of the Society in the past twenty-five years from 175 to 4300 members, from a budget of \$4000 to one of \$120,000, from 12 to 515 specifications and methods of test, who can doubt that in another twenty-five years the efforts to develop consciously and systematically the "promotion of knowledge of the materials of engineering" will grow into the "great oak" of research in materials supported by a greatly enlarged A.S.T.M. Research Fund, the income of which will supplement the funds contributed as at present by industries for specific investigations?

Provision has been made for a steady growth of the Fund by the policy of investing yearly at least one-half of the membership entrance fees, which alone in a period of twenty-five years, at our present rate of growth, will amount to \$50,000. We are confident that other additions will be made from time to time by those who see the wisdom of enabling the Society to initiate and support studies of the properties of engineering materials, upon which the better utilization of materials, and our very work of standardization, are dependent.

Committee on 1928 Marburg Lecture

The Executive Committee has appointed the committee to select the Marburg Lecturer for 1928. Under the rules governing the Lecture this committee consists of a member of the Executive Committee, a member of Committee E-9 on Correlation of Research and a member of Committee E-6 on Papers and Publications. The personnel is as follows:

G. H. CLAMER, President and General Manager, The Ajax Metal Co., Philadelphia, Pa.

J. H. GIBBONEY, Chief Chemist, Norfolk and Western Railway Co., Roanoke, Va.

A. N. JOHNSON, Dean, College of Engineering, University of Maryland, College Park, Md.

Past-President Gibboney will serve as chairman of the committee.

Committee on Dudley Medal Award

In pursuance of the requirements of the rules governing the award of the Dudley Medal, the Executive Committee has appointed the following Committee on Award:

ZAY JEFFRIES, Consulting Metallurgist, Aluminum Co. of America, Cleveland, Ohio, Chairman.

P. J. FREEMAN, Chief Engineer, Bureau of Tests and Specifications, Department of Public Works, Allegheny County, Pittsburgh, Pa.

J. H. HALL, Metallurgical Engineer, Taylor-Wharton Iron and Steel Co., High Bridge, N. J.

This committee will review the eligible technical papers presented at the annual meeting of the Society last June, and will select that paper of outstanding merit constituting an original contribution on research in materials that in its opinion deserves the award of the Medal. The author or authors of the paper so selected will receive the Medal at the annual meeting next year.

The New Book of Standards

The 1927 Book of Standards—Part I Metals and Part II Non-Metallic Materials—has been printed and distribution at this date (November 28) has been almost completed. Part I contains 144 standards relating to metals and Part II 196 relating to non-metals. The two parts contain respectively 871 and 1000 pages; and the total of nearly 1900 pages is over 50 per cent larger than the previous 1924 edition.

Some new features of the books designed to facilitate their use and enable the reader more quickly to locate a given standard either by title or subject matter deserve particular mention. The index to each part is more complete than ever before and has been improved in arrangement. A new feature that we believe will be most helpful is the use of bold face type for the significant subject words in the titles of the specifications and methods of test indexed. The omission of such words as "methods of" in the titles and the abbreviation of "specifications" and "definitions" serves to condense the references and speed up the use of the index. Improvements have been made in the arrangement of the two tables of contents, one table listing the standards according to subjects and the other in numeric sequence of their serial designation. A guide to the use of the Book of Standards is introduced for the first time on page 4 of each part and will undoubtedly be a help to the user of the books.

A new cloth binding has been used that is at once more attractive and more serviceable than that formerly used. It has been adopted for the cloth binding of all the Society's publications.

Use of Specifications in Market Quotations

In the September BULLETIN, mention was made of a recommendation by Committee B-2 on Non-Ferrous Metals and Alloys that a study be made of the lack of definiteness in the description of non-ferrous metals and alloys used in trade publications in quoting market prices, in the belief that industry would be greatly benefited and the usefulness of the work of the Society promoted. The trade papers have shown considerable interest in the possibilities of such an investigation.

The Executive Committee has decided that this suggestion merits further study, in the belief that the usefulness of A.S.T.M. specifications in all fields would be greatly enhanced if they were more generally made the basis of market quotations and of purchases. The practical difficulties surrounding the proposal are recognized and in order to arrive at a general consensus of opinion a small sub-committee of the Executive Committee is being appointed to give further study to the proposal. It is expected that this committee will arrange a conference to which the editors of the trade and technical journals interested, officers of interested committees of the Society, and leading producers and users of non-ferrous alloys will be invited.

The Secretary-Treasurer will be glad to confer with any members of the Society interested in this project and comments from any of the members will be welcomed.

A New Engineering Index Service

A comprehensive scheme for indexing the engineering literature of the world is to be initiated the first of the year with the new weekly engineering index service of the American Society of Mechanical Engineers, 29 W. Thirty-ninth Street, New York City.

The task will include the preparation of index items for the 1500 technical publications of the world appearing in 17 languages in 37 countries now received in the Engineering Societies Library, New York City. The index items will be printed on cards and mailed weekly to the subscribers to the new service. The project was authorized by the A.S.M.E. Council as an important extension of the Engineering Index "in its service to research and the development of industry and to bring not only to everyone in the United States but to any in the world the storehouse of knowledge appearing in the technical literature of the world."

Mr. F. R. McMillan has accepted appointment by the Executive Committee of the Society to membership on Committee E-9 on Correlation of Research. Mr. McMillan's long experience as an investigator, his connections with research in the fields of cement and concrete and his familiarity with investigative work by committees of the Society in these fields will enable him to render valuable service in promoting the research activities of the Society. Mr. McMillan succeeds Mr. F. G. Breyer, who was obliged to resign from the committee because of pressure of other duties.

1927 Proceedings

The Proceedings of the 1927 Annual Meeting are now being prepared. The make-up of the volume, both Part I and Part II, is well advanced and the book will shortly go to press. It is expected that distribution will be made early in January.

International Congress

(Continued from page 3)

allowed for reasons such as reducing the dead weight or because of insufficient clearance.

"Designing of Concrete Mixtures," by R. W. Crum, Ames, Ia., presented by D. A. Abrams. The paper discussed the theories of designing concrete mixtures with special reference to the water-cement ratio and the void determination method. The practical application of the water-cement ratio theory on the job was described with the advantages to be derived for the contractor from an improvement of concrete quality.

"Examination of Reinforced Concrete Structures Near the Sea in the Dutch East Indies," by G. Wolterbeek of Zutphen, Netherlands. It was observed that structures in the vicinity of the sea showed corrosion of the reinforcement and consequent spalling off of the concrete. Concrete under water showed no deterioration, the danger zone lying immediately above the high water level.

"Cements for Use in Sea Water," by R. Grün, of Düsseldorf, Germany. Investigation has shown that the following measures serve to preserve concrete in sea water: dense structures in accordance with Fuller's curve, cements containing no free lime, protection by impregnation or coating.

"Test Methods for Portland Cement Specified in Various Standard Specifications," by G. Haegemann, of Berlin, Germany.

"Increase of Strength of Concrete and Mortar with Age," by F. Klokner, of Prague, Czechoslovakia. A new and relatively simple formula was presented. Numerous tests had proved this formula to be applicable not only to compressive strength but also to tensile strength, bending strength and bond strength.

"The Present Status of Standard Tests for Portland Cement," by M. Ros, of Zurich, Switzerland. Presented the advantages of using specimens of a plastic mortar mix rather than dry-tamped mortar specimens.

"Alumina Cements," by H. Le Chatelier and A. Duhamaux, of Paris, France.

"Heat Phenomena During Setting of Cement," by Paul Joye, of Fribourg, Switzerland.

"Volumetric Changes in Portland Cement Mortar and Concrete Due to Causes Other than Variations in Temperature," by R. E. Davis, of Berkeley, Calif., presented by D. A. Abrams. The paper presented results of a special study of the volume changes produced by varying moisture conditions.

"Strength Tests of Cement (Including Soundness, Time of Set and Shrinkage)," by Gehler of Dresden, Germany. The paper reviewed the increased compressive strength of commercial cement since 1913, including iron cement, iron portland cement, slag cement and the new German high test cements. Raising the tensile strength was designated as the next task.

"Proposed Methods for Testing the Strength of Mortars and Concretes," by M. Féret of Boulogne, France.

"The Influence of the Composition of Mortars and of the Quality of Stone on the Resistance of Masonry," by J. A. Van Der Kloes of Delft, Netherlands.

"Weathering of Rocks," by Steuer of Darmstadt, Germany. The paper pointed out that aside from the usual tests, petrographic examinations should be further developed.

"Compression Tests of Brick," by Burchartz, Berlin, Germany.

"The Influence of Firing Methods on Unit Weight and Specific Gravity of Brick," by C. K. Visser, of Delft, Netherlands.

"Methods of Testing Road Building Rock," by R. Schlyter, of Stockholm, Sweden. The paper gave strength test results of different rocks such as granite, gneiss, diabase, sandstone and limestone.

"Road Materials," by Burchartz, Berlin-Dahlem, Germany. The paper dealt with tests of road materials such as natural or artificial rock in the form of paving units or aggregate. Weathering properties were cited as an important consideration and were determined by petrographic investigations, absorption, saturation coefficient and freezing tests.

"The Testing of Refractory Materials," by H. Salmang, of Aachen, Germany.

"The Progress of the Manufacture of Refractory Materials," by C. J. Van Nieuwenburg of Delft, Netherlands.

"Recent Developments in the Testing of Refractories," by M. C. Booze, of Cincinnati, Ohio.

"Cellular Concrete," by Erik V. Meijer, of Copenhagen, Denmark. The paper described the composition and properties of

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International Congress

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cellular concrete obtained by mixing viscous foam with cement, sand and water. It is characterized by very light weight, low heat conductivity, low absorption, protection from corrosion and sound insulating properties.

"Accomplishments in the Research and Manufacture of Siliceous Building Materials," by B. Schwesow, of Moscow, Russia. The paper outlined the progress in the research and manufacture of siliceous structural materials within the last decade, including the use of puzzolanic mixtures in portland cement, studies of sand and of ceramic materials.

"Original Rocks Used in Old Time Buildings in the Netherlands, Their Origin and Properties," by A. L. W. E. van der Veen, The Hague, Netherlands. The examination of old buildings showed that shale, limestone, tufa, sandstone, and basalt have resistance to weathering in the order named. The resistance to frost action is proportional to tensile strength and permeability.

"Concrete Aggregates," by W. Petry, of Oberkassel, Germany. The paper pointed out how closely the ideal grading curve can be approximated in practice.

"Contraction and Expansion of Concrete," by H. Rabozée, Brussels, Belgium.

"Contribution to the Study of Concrete," by C. Magnel, of Ghent, Belgium. The paper showed that calcium chloride reduced the strength and rate of hardening of slag concrete.

"Studies to Determine the Optimum Composition of Mortars and Concretes," by M. Leclerc du Sablon, Toulouse, France. The paper discussed the effect of density of concrete on strength, the grading of sand and coarse aggregate and the quantity of mixing water.

"Rapid Freezing Tests of Rock," by Felix Gonzalez, of Madrid, Spain.

"New Test Methods for Refractories," by O. Kallauner, of Brunn, Czechoslovakia. Suggests new method for determination of effect of lime lumps in brick, testing permeability of roofing tile, uniform designation of absorption of ceramic wares, determination of soluble solids in ceramic earth, determination of soluble solids in ceramic products.

"Investigations of Rational Proportioning of Mortar and Concrete," by M. R. Dutron, of Brussels, Belgium. The paper showed that quality of cement and grading of aggregates and the quantity of mixing water are the determining factors.

Papers Relating to Miscellaneous Materials

"Observations on the Measurement of the Lubricating Value of Oils and Greases," by P. Woog, of Paris, France.

"New Methods for the Practical Evaluation and Judging of Oils," by Bela Marschalko, Budapest, Hungary.

"The Testing of the Resistance of Mineral Oils and Special Transformer Oils to Oxidation by Means of Air," by E. Norlin, Stockholm, Sweden. Contained a brief resumé of the composition of oils and the compounds formed by oxidation. Gave a review of the various methods for testing the resistance of oils to oxidation.

"The Testing of Lubricants in Germany," by Hilliger, of Berlin, Germany. Reviewed the work of the Committee on Lubricants of the German Society for Testing Technical Materials with particular reference to collaborative tests carried out to determine proper permissible variations in results.

"The Viscosity Testing of Petroleum," by V. L. Chechot, of Philadelphia, Pa., presented by the author. The paper described the results of an extended investigation of the determination of viscosity of petroleum by means of the Saybolt Universal and Saybolt Furol viscosimeters under the joint auspices of the American Petroleum Institute and the A.S.T.M.

"Recent Investigations on Transformer Oils," by H. Stager, Baden, Austria.

"Contribution to the Study of Turbine Oils, Transformer Oils and Automotive Oils," by Matthis, of Charleroi, Belgium.

"Elasticity and Plasticity of Rubber," by A. van Rossem, of Delft, Netherlands. Tension and compression tests were made at various temperatures to determine the elastic properties of rubber articles which are to be used at high temperatures.

"Progress Made in the Chemistry and the Chemical Testing of Rubber," by Kindscher, Berlin, Germany.

"Critical Review of the Methods for Mechanical Testing of Rubber with Particular Reference to Their Use in Research and in Practical Developments," by A. Schob, of Berlin, Germany.

"Rust-Preventive Paints," by A. V. Blom, of Zurich, Switzerland.

"Rust Prevention," by Schulz, of Brandenburg-West, Germany. The paper reviewed the causes of and theories for the rusting of iron, the losses due to corrosion, and rust prevention by means of corrosion-resistant alloys, metallic coatings, painting, and coating with mineral oils.

"Structural Timber," by O. Graf, of Stuttgart, Germany. Discussed the necessity for grading timber according to density, defects, etc.

"The Progress of the Modern Scientific Methods for Timber Testing," by J. Ph. Pfeiffer, of Delft, Netherlands. The paper called attention to the necessity of a thorough knowledge of species and of its structure in the testing and grading of timber.

"Artificial Drying of Wood, Differences Between Dry Wood and Green Wood Artificially Dried," by M. F. Cellerier, of Paris, France.

"On Some Elastic Properties of Laminated Wood for Construction Purposes," by E. B. Wolff and J. G. Van Ewijk of Amsterdam, Netherlands.

"History and Development of A.S.T.M. Tests and Specifications for Timber," by J. A. Newlin, of Madison, Wis., presented by W. H. Fulweiler. The paper presented the subject in two main divisions, the development of standard test methods including tests of small clear specimens, and tests of timber in structural sizes and the development of standard specifications for timber.

"Some Methods of Testing Paint and Varnish Materials," by P. H. Walker of Washington, D. C., presented by the author.

"Testing of Coal and Coke."

I. "Standard Sampling of Coal and Coke" by W. B. Calkins, of Philadelphia, Pa.

II. "Present Status of Standardizing Methods for Analysis of Coal and Coke in the United States," by A. C. Fieldner, of Pittsburgh, Pa.

III. "Standardizing Physical Tests of Coke and Their Interpretation," by O. O. Malleis, of Pittsburgh, Pa.

IV. "The Value of Standard Tests for Determining Suitability of Coal for Manufacturing Gas and By-Products," by W. H. Fulweiler, of Philadelphia, Pa.

The four sections of the paper were presented by Mr. Fulweiler.

"Properties of Coal," by J. C. Wirtz, of The Hague, Netherlands. The paper described two methods for specifying coal, one by means of chemical analysis, including carbon content, determination of ash, etc., and the other by describing its physical properties, such as coke yield, softening point of ash, etc.

"Recent Viewpoints on Carrying Out Fuel Research," by P. Schlapher, of Zurich, Switzerland.

"Testing of Coal," by E. Norlin, of Stockholm, Sweden. The paper described the methods employed in testing coal imported into Sweden, including the evaluation of coal and its purchase and fixing of price on the basis of analysis.

"New Theories Relating to Asphalt," by F. J. Nellensteyn, of The Hague, Netherlands.

"Use of the Spectrophotometer for Matching Colors," by F. P. Ingalls, of Brooklyn, N. Y., presented by P. H. Walker. The paper described investigations made under the auspices of the A.S.T.M. of the commercial application of the spectrophotometer in the preparation of samples of paints matching closely in color a set of standards that the maker of the paints had not seen.

"Review of the Endeavors to Bring About Standardization in the Testing of Materials," by A. Leon, of Graz, Austria.

"The Importance of Standard Thermometers in the Testing of Materials," by W. H. Fulweiler, of Philadelphia, Pa., presented by the author.

Proceedings of the International Congress

The various papers presented at the International Congress for Testing Materials will be issued in book form. This volume is expected to be off press in about six months. The regular price will be 34 guilders per copy (one guilder equals approximately 40 cents). A special price of 30 guilders has been set for all copies ordered from the Secretariaat of the Congress before January 1. These orders may be transmitted direct to the Secretariaat at Valckenierstraat 2, Amsterdam, or to Society headquarters for transmission to the Secretariaat.

COMMITTEE ACTIVITIES

Space in the BULLETIN is reserved for items of interest about committee activities. Officers of committees are invited to prepare information of suitable character for publication.

Investigation on the Accuracy of the Standard Method of Sampling Coal

In 1916 the Society adopted a standard method of sampling coal which was subsequently approved as "Tentative American Standard" by the American Engineering Standards Committee. This method was adopted only after careful study and research, and as the method is easy to apply its general adoption should have been effected. But by reason of the labor involved and the comparatively low cost of the material to be sampled, the coal producer and consumer have in general been blind to the fact that accurate and representative data cannot be secured by hit-or-miss methods of sampling and analysis. To secure accurate and comparable results everyone must use a common means of measurement.

Mr. A. C. Fieldner, chairman of Committee D-5 on Coal and Coke, states that the accuracy of the B. t. u. determination and of the chemical analysis of a consignment of coal depends upon a chain of operations consisting of (1) the taking of a representative gross sample of a consignment; (2) the reduction of this gross sample to a much smaller sample of suitable size for shipment to the laboratory, this reduction to be made without altering the representative composition of the gross sample; (3) further reduction of the sample received at the laboratory for the purpose of making the various analytical determinations, again preserving the representative composition of the sample; and (4) making the various analytical determinations such as the proximate and ultimate analysis and B.t.u. determination. In order to provide everyone with the common means of measurement necessary to secure satisfactory results, the A.S.T.M. after years of research and experiment adopted standard methods for all the operations in this chain.

Operations 3 and 4, the ones that are performed in the laboratory, have been tested on a number of occasions, and are recognized as being fairly satisfactory, but operations 1 and 2 have not been systematically tested on such a scale as to demonstrate their accuracy in the hands of different samplers. It is recognized that these two operations may be the weakest links of the chain. Furthermore, it is believed that combustion engineers generally do not appreciate the importance of using a standard method for the selection and reduction of the gross sample.

In order to demonstrate the importance of proper sampling and to determine what tolerances are permissible in analytical results when the gross sampling is done strictly according to the A.S.T.M. Standard, Committee D-5 on Coal and Coke has appointed a sub-committee on sampling and tolerances, of which Mr. W. B. Calkins is chairman, to undertake this work. This sub-committee is composed of fuel engineers and chemists connected with commercial laboratories, public utilities both gas and electric, by-product plants, steel mills and large coal producers. The sub-committee expects to cooperate with the Prime Movers Committee of the National Electric Light Association since the latter committee is making an investigation of the same problem.

The plans for carrying out the work of the sub-committee, as outlined by its chairman, contemplate securing the cooperation of the Bureau of Mines and by means of a research fund enable the Bureau to employ trained men for the purpose of

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Schedule of Committee Meetings

DATE	COMMITTEE	PLACE
December 1-2	D-11 on Rubber Products	Buffalo, N. Y.
December 2-3	D-4 on Road and Paving Materials	Washington, D. C.
December 5	D-2 on Petroleum Products and Lubricants	Chicago, Ill.
December 7	Joint Committee on the Effect of Temperature on Metals	New York City.
December 9	E-6 on Papers and Publications	Philadelphia.
January	A-1 on Steel	Philadelphia
January	D-8 on Waterproofing and Roofing Materials	New York City
January 17	Executive Committee	Philadelphia
January 17-18	D-16 on Slate	New York City
January 26-27	D-9 on Electrical Insulating Materials	New York City

Group Committee Meeting in March

Plans are already under way for holding the usual spring group meeting of committees. Several cities are under consideration as possibilities for holding this group meeting. It is thought that it should be held somewhere in the East and Washington has been suggested as a desirable meeting place. A very successful group meeting was held in that city in the fall of 1924. Furthermore a number of the Society's committees have made it a practice to hold an occasional meeting in Washington so this city should appeal to them. The opinion of the various committees of the Society will be solicited in reference to the best city for holding the meeting and definite arrangements will then be made. The group meetings are becoming increasingly popular with our standing committees, and we are looking forward to one of the best group meetings yet held with a large number of the committees participating.

Committee Notes

Committee B-4 on Metallic Materials for Electrical Heating has for some time been at work on the preparation of a life test for electrical heater wires. Tests were made on the desirability of a life test made on wire in a catenary and in a vertical position. As a result of these the committee discarded the catenary test in favor of the vertical test. Requirements were tentatively drawn up and tests were made by different members of the committee. Considerable discussion was given to voltage control and it was unanimously agreed that it would be necessary to have definite voltage control on the life test in order to get consistent results.

The committee held a meeting in Washington on October 7 and 8, at which time the proposed life test or durability test for electrical heater wires at high temperature was revised and arrangements made for round-robin tests by a number of laboratories. A method of test for uniformity of temper of wire has been outlined. A study is being made of the extension of nickel-chromium bars at high temperature to determine whether this is actual growth of the material or simply plastic deformation.

Committee C-1 on Cement held a very well-attended meeting on October 24 and 25, at Allentown, Pa. The first day was given over to a very thorough discussion of the results of tests of 32 brands of cement by 47 laboratories. The data were presented from the viewpoint of time of set, fineness of

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Committee Notes

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the cement, consistency used and strength developed in the form of the usual standard test specimens and briquets and compression test specimens made from a neat paste containing 42 per cent of water. These data were compared with the tests of the concretes made by six of the laboratories. The discussion developed along lines which will be of value to the sub-committees engaged in digesting this data for presentation before the meeting of the Society in June.

Committee C-3 on Brick held a meeting in Dayton, Ohio, on October 10 and 11. The principal item under discussion was a Tentative Specification for Sand-Lime Brick. This specification will be given further consideration during the year and may be presented before the Society at the next annual meeting.

The committee is also developing a research program on the weathering and porosity of brick. A committee is looking into the facilities available at several institutions for carrying out this research work which will involve testing brick in a freezing and thawing cycle.

Committee D-9 on Electrical Insulating Materials held a meeting in Rochester on October 27 and 28 in conjunction with which very interesting meetings of a number of its sub-committees were held.

Sub-Committee I on Insulating Varnishes is carrying out considerable work in connection with different methods of testing the drying characteristics of varnishes. Results so far obtained indicate that a satisfactory method of testing is to use a copper base on which to place the varnish and to test it by placing a piece of filter paper over it, the time of drying being taken as the time until the paper no longer sticks to the metal.

A method for determining the percentage of non-volatile matter in varnish is now being prepared for possible submission as a tentative standard. The committee is giving consideration to the effect of rate of application of voltage on the dielectric strength of liquid varnish. Methods for determining the acid and alkali numbers of varnish are being considered and two methods have been outlined which will be used by various laboratories in making round-robin or cooperative tests.

Sub-Committee II on Molded Insulating Materials is giving further consideration to the proper test specimens to be employed in testing both hot-molded and cold-molded material. It is expected that requirements for the specimens for tension testing for both types of materials will be developed so as to recommend a change in the present requirements.

Water absorption is receiving considerable attention in connection with which data is being developed on the relation of surface area to the mass of the specimen. Methods for determining the plasticity of molded materials were discussed.

Sub-Committee III on Sheet Insulation reviewed data secured on the testing of paper and discussed methods of test for water absorption, and compression strength of laminated material and methods of testing varnish cloth tape and methods for moisture absorption and rate of deterioration of sheet material. A method of transverse testing of laminated material is expected to be presented at the next annual meeting of the Society.

Sub-Committee IV on Liquid Insulation is carrying out further work on the neutralization value of oils. A new section was organized to study the question of the relation of moisture content to the neutralization value. The cooperative life tests on different samples of oil is being continued. A new section is being formed to study the standardization of a stability test for cable oils.

Sub-Committee V on Porcelain Insulation is interested in developing an impact test for porcelain.

Sub-Committee VI on Cable Splicing and Pothead Compounds in view of the increasing importance of resistance and power factor measurements is recommending that a new sub-committee on resistance and power factor be appointed to deal with these determinations for all insulating materials.

Sub-Committee VII on Radio Frequency Tests is carrying out further tests with the new tentative method of making power factor measurements at radio frequencies. In addition to this, work is outlined to study the methods of measuring losses at very short wave lengths of around 15 to 20 meters.

Investigation on Sampling Coal

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collecting and preparing check samples from different grades and qualities of coal. The Bureau will retain and analyze one of the final quarters from each of the individual samples and will send the other three quarters to such laboratories as wish to participate and will agree to use standard analytical methods on the samples in question.

This sampling program will enable the sub-committee to secure tolerance data on three or four sets of samples taken from the different shipments of coal from the same mine and on various grades of high, medium and low-volatile coal. A sufficient number of samples will be taken so that the tolerance data will be correct for the coal under investigation. From these data a preliminary report will be prepared and copies furnished to all the participating laboratories.

It is hoped that this report will prove of such value to the large coal consumers and producers and to the various engineering, gas and technical societies that the sub-committee will be able to secure a fund large enough to permit the continuation of the sampling investigation under the supervision of a representative of the Bureau of Mines at various plants in the large coal-consuming centers. Cooperative committees have already been formed in such centers as Philadelphia, New York, Boston and Buffalo and it is hoped to extend this cooperation in other large centers.

Investigation on Coal Classification Under Way

The initial meetings of the three technical committees of the Sectional Committee on Coal Classification, sponsored by the A.S.T.M. were held on October 17 in New York.

The Committee on Scientific Classification is charged with making a study of the possibilities of formulating a system for the classification of coal based principally upon its constitution, composition and geological occurrence. The Committee on Use Classification is charged with making a study of the possibilities in the development of such a classification if desirable and equitable—one that would be based principally upon the uses of coal and the commercial practice but which also would be correlated with the scientific classification in so far as such correlation might be desirable. The Committee on Marketing Practice is to obtain, collect and correlate marketing practice on coals as it is connected with classification with the idea that this information would be available to the other two committees.

At the meeting of the Committee on Scientific Classification, H. J. Rose was elected chairman; W. H. Cunningham, vice-chairman; and W. T. Thom, secretary. Sub-committees were organized as follows: On the nature, location and occurrence of the types of American coals; on the composition and properties of coal and methods for their determination, and on proposed classifications of coals.

At the meeting of the Committee on Use Classification W. H. Fulweiler was elected chairman; Malcolm MacFarlane, vice-chairman; and Gilbert Franklyn, secretary. It was decided that the committee should secure data on different uses of coal and classifications now in use and on what these classifications are based.

Organization of the Committee on Marketing Practice was perfected by the election of F. R. Wadleigh, chairman; E. W. Parker, vice-chairman; and S. B. Crowell, secretary. It was felt that the committee should collect information on commercial classifications and on marketing practices in the use of classification.

Atlanta Meeting of Committee D-13

Committee D-13 held its fall meeting at Atlanta, Ga., on October 19, 20, and 21. Two half-day sessions were held at the A. French Textile School of the Georgia School of Technology.

An outstanding feature was the initial meeting of a new sub-committee on raw cotton under the chairmanship of W. H. Barre, Director of Research of the South Carolina Experiment Station, Clemson College, S. C. The sub-committee meeting indicated clearly that the members of Committee D-13 appreciate the desirability of a more scientific understanding of the raw materials used in the textile industry. A special section was appointed to investigate methods of determining the tensile strength and length of cotton fibers. The sub-committee includes some of the foremost experts on cotton fiber in the country and some of the cotton growers. It is expected that this committee will eventually be able to draw specifications whereby a manufacturer will be able to tell from any sample of cotton what results he may expect in the finished goods.

Several of the sub-committees are at work drawing up specifications for engineering fabrics and tape, which specifications will be presented at the next meeting of the committee. Among the specifications being developed are specifications for tire cord.

Another indication of the committee's interest in careful studies of raw materials was shown in the authorization of a sub-committee to study finishing materials used in the textile industries.

One half-day session at the A. French Textile School was devoted to papers and discussions of a more or less technical nature. This feature has been the means of promoting interest in more careful studies of textile materials. At the general business session it was suggested that Committee D-13 had arrived at a point where a laboratory for clearing up moot points in connection with standardization would be a valuable adjunct.

Wire and Cable Standards

The Sectional Committee on Insulated Wire and Cables has submitted to its several sponsor bodies, of which the A.S.T.M. is one, a final report covering the following parts of the work assigned to it: Wire and Cable Definitions, Specifications for Soft or Annealed Copper Wire, Specifications for Tinned Soft or Annealed Copper Wire for Rubber Insulation, Specifications for 30-per-cent Rubber Insulation for Wire and Cable for General Purpose and Specifications for Cotton, Silk and Enamelled Magnet Wire. The two specifications for copper wire as approved by the sectional committee are identical in substance with A.S.T.M. specifications of the same titles (B 3 and B 33) and will be offered to the A.E.S.C. for approval as American Standard under the arrangement by which the A.S.T.M. is assigned sponsorship for them. Committee B-1 on Copper Wire, which is the approved sectional committee in this work, is at present balloting upon a report offering these specifications to the A.E.S.C.

The specifications for 30-per-cent Rubber Insulation have been based upon the A.S.T.M. specifications of the same title (D 27 - 21 T). The differences between the two specifications are now being studied by Committee D-11 on Rubber Products.

The other portions of the report do not relate directly to any standards of the Society. Consideration is being given, however, to the advisability of adopting magnet wire specifications as A.S.T.M. standards.

Joint Consideration of Pipe Standards

The Society has accepted an invitation from the American Engineering Standards Committee to sponsor, jointly with the A.S.M.E., the development of standards of design, dimensions and materials for steel and wrought-iron pipe and tubes. The project has developed from that of standards for pipe flanges and fittings, which while dealing primarily with dimensional standardization came to involve the designation of materials, for which the Society has drawn up several specifications during the past three years. The use of pipe and tubing for high temperatures and pressures is becoming of increasing importance and it has been felt that if a study of design, dimensions and materials for all ferrous metal pipe and tubing could be coordinated through one committee, progress towards unified standards would be accelerated.

Notes on Correlation of Research

At a recent meeting of Committee E-9 on Correlation of Research, the various research activities of the Society were reviewed. Substantial progress was made during the past year in the studies of yield point of structural steel and of magnetic properties of steel. The latter project, which is being administered by Committee A-8 on Magnetic Analysis, is perhaps one of the most important, fundamental investigations upon which the Society is at present engaged.

Some New Research Projects

Special note was made of new studies begun by certain of the committees this year. Some of the more important are:

The study of corrosion of non-ferrous metals and alloys by Committee B-3. The committee has prepared a program of study that comprises (1) atmospheric corrosion tests of alloys in the form of rolled sheet or strip; (2) corrosion in liquids to be determined by field tests in common solutions, under conditions representative of those existing in some industrial processes in general use; and (3) galvanic and electrolytic corrosion in liquid media of high, medium and low conductivity. The committee is planning to raise a sum of money to carry forward this work and will make use, where feasible, of the field test racks erected by Committee A-5 in connection with its corrosion studies of zinc-coated products.

Committee B-4 is doing some very interesting work in determining the durability of electrical resistance wire at high temperatures, with due regard to service conditions. A study of the so-called "growth" of nickel-chromium resistor materials due to continued and repeated heating, is also being made.

A study of the corrosion of corrugated flexible metal culverts has been started by Committee A-5, as announced in the BULLETIN for July, 1927. This study will be made in the beginning from a service standpoint of metal culvert as a material and not as a structure. Later it is planned to determine the suitability and comparative value of the different types of base metals used in flexible culvert construction and under varying soil and other conditions.

Studies of the abrasive hardness of slate and the weathering characteristics of slate have been announced by Committee D-16.

Subjects Suggested for Papers

A study of the general subject of mineral aggregates made by Committee E-9 during the year has led the committee to suggest to the Papers Committee that an effort be made to secure papers outlining the properties and tests that are applied at the present time to mineral aggregates for the various types of uses to which they are put in industry.

The committee has further been impressed with the great importance of the subject of wear testing of materials and has discussed in particular the subject of wear of metals. The committee was instrumental in arranging for a paper on

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New Members to November 28, 1927

The following 28 members were elected from October 1, 1927, making the total membership 4317.

American Waterproofing Co., O. C. Champion.
Ammon, M. A. (Caterpillar Tractor Co.).
Anglo American Oil Co., Ltd., H. S. Tegner.
Atlantic Gypsum Products Co., Inc., L. I. Neale.
Cleveland Public Library, Cleveland, O.
Enger, M. L. (University of Illinois).
Gates, R. E. (Sun Oil Co.).
Gray Concrete Co., F. B. Gray.
Hatfield, W. H. (Brown Firth Research Laboratories).
Hazel-Atlas Glass Co., D. M. Gray.
Hill, Hubbell and Co., D. W. Boylan.
Howard, E. E. (Harrington, Howard & Ash).
Hughes, T. J. (Pennsylvania State Highway Dept.).
Johnson, D. W. (Stillman & Van Siclen, Inc.).
Klos, C. H. (M. W. Kellogg Co.).
Krauss, F. E. (Krausswerke).
Lionel Corporation, L. Caruso.
Mendélez, José (University of Havana).
Messina (Transvaal) Development Co., Ltd., A. B. Emery.
Mitchell, Inc., James, I. V. Nilsen.
Potter, H. V. (Damard Lacquer Co.).
Riley, J. L. (U. S. Steel Products Co.).
Shapiro, C. H. (Reed Roller Bit Co.).
South Carolina Agricultural Experiment Station, H. W. Barre.
U. S. Navy, The Commandant, Industrial Dept., Mare Island, Calif.
Van Dorn Iron Works Co., R. A. Townsend.
Weger, Max (Bakelite Gesellschaft).
Winters, A. H. (Hoffman-Henon Co.).

Deceased Members

We announce with regret the death of two members:

G. A. DE GRAAF, Chief, Testing Laboratory, Chemical Division,
Public Service Electric and Gas Co., Irvington, N. J.
GEORGE W. TORRENCE, Manager, Pittsburgh Testing Laboratory,
Chicago Branch, Chicago, Ill.

Correlation of Research

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this subject at the recent annual meeting, and has now suggested to the Papers Committee that a Symposium on Wear Testing be held next year. It is thought that a Symposium comparable with those that have been held in recent years on other subjects might well lead to the setting-up of an A.S.T.M. research committee on this subject.

The committee is conferring with the American Foundrymen's Association regarding an invitation that has been received to cooperate in a study of the effect on the character of pig iron of additions of varying percentages of scrap in the blast furnace.

Two general studies of considerable importance are now being made by the Research Committee. The one relates to the type of research committee organization within the Society that can best promote our work in extending the borders of knowledge of engineering materials. The problem relates particularly to the relationship that should ultimately be established between committees devoted primarily to the work of standardization and committees engaged principally in the conducting of investigations.

The second subject under consideration relates to the continued study of fatigue phenomena of metals, especially as referring to the fatigue investigations carried on up to the present time under the auspices of the National Research Council. At a conference on the subject held during our recent annual meeting, the suggestion was made that several societies, among them our own, might arrange to sponsor further studies of the fatigue phenomena of metals. Several forms that such sponsorship might take have been suggested and are being studied.

List of Publications

Proceedings, Volume 26 (1926).—The Proceedings for 1926 in two parts: Part I, committee reports with discussions and new and revised tentative standards (1204 pp.); Part II, technical papers with discussions (691 pp.). Prices to non-members: paper \$12.00, cloth \$13.00, half-leather \$16.00. To members for extra copies: \$7.00, \$8.00 and \$11.00, respectively.

Book of A.S.T.M. Standards.—Issued triennially. The 1927 edition (1900 pp.) contains the 340 Standards adopted by the Society. Issued in two Parts—Part I, Metals; Part II, Non-Metals. Prices to non-members: either Part, cloth \$7.50; both Parts, \$15.00; half-leather \$9.00 and \$17.00. To members for extra copies: either Part, cloth \$5.00; both Parts \$9.00; half-leather \$6.50 and \$12.00.

Book of A.S.T.M. Tentative Standards.—The 1927 edition (800 pp.) contains 175 tentative standards issued by the Society. Prices to non-members: paper \$7.00, cloth \$8.00. To members: \$4.50 and \$5.50, respectively.

Separate Standards and Tentative Standards.—Separate copies of all standards and tentative standards are available. The price is 25 cents for a single copy and in lots up to 50. Larger quantities are furnished at lower prices.

Complete Sets of Proceedings from 1902 to 1926, inclusive (with the exception of Vols. I and III). Special prices are made to members for extra copies and for complete sets. Binding in paper, cloth or half-leather.

Index to Proceedings, containing both an author and subject index of committee reports and technical papers and discussions. Index to Vols. I-XII, 1898-1912 (153 pp.). Prices to non-members: \$1.50 in cloth, \$2.00 in half-leather; to members: \$1.00 in cloth, \$1.50 in half-leather. Index to Vols. XIII-XX, 1913-1920 (189 pp.). Prices to non-members: \$2.50 in cloth, \$3.50 in half-leather; to members: \$1.75 in cloth, \$2.75 in half-leather. Index to Vols. 21-25, 1921-1925 (224 pp.). Prices to non-members: \$2.50 in cloth, \$3.50 in half-leather; to members: \$1.75 in cloth, \$2.75 in half-leather.

Special Reprints from Proceedings

Symposium on Effect of Temperature upon the Properties of Metals: Four papers summarizing existing knowledge presented at Cleveland meeting of A.S.T.M. and A.S.M.E., May, 1924, complete with discussion and valuable bibliography (184 pp., paper cover). Price, \$1.50.

Symposium on Corrosion-Resistant, Heat-Resistant and Electrical-Resistance Alloys: Thirteen papers on all phases of the subject presented at A.S.T.M. meeting at Atlantic City, June, 1924, containing three large inset tables of data on ninety of these alloys, complete with discussion (265 pp., paper cover). Price, \$2.00.

1924 Report of Joint Committee on Standard Specifications for Concrete and Reinforced Concrete, including complete specifications with 14 A.S.T.M. specifications and methods of test appended (152 pp., paper cover). Price to non-members, \$1.50. To members, \$1.00.

Special Pamphlet on Textile Materials, containing twelve standards and eight tentative standards, as well as data relating thereto and information concerning the work of Committee D-13 on Textile Materials (106 pp.). Price, 75 cents.

1927 Report of Committee D-2 on Petroleum Products and Lubricants, containing twenty-six tentative and fifteen standard methods of test (245 pp.). Price, \$1.00.

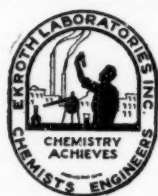
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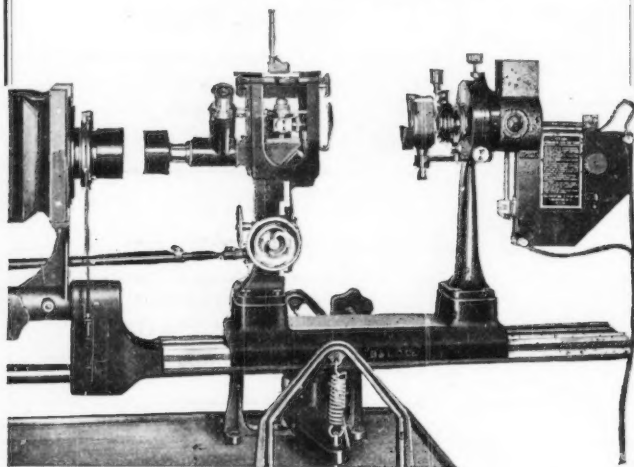
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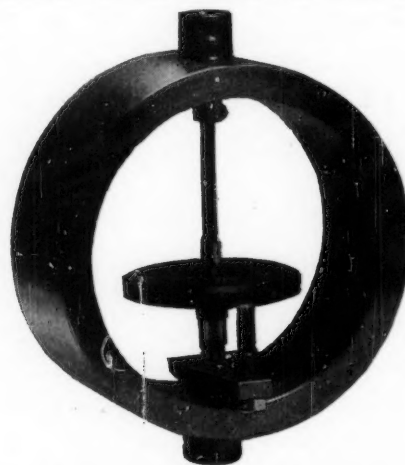
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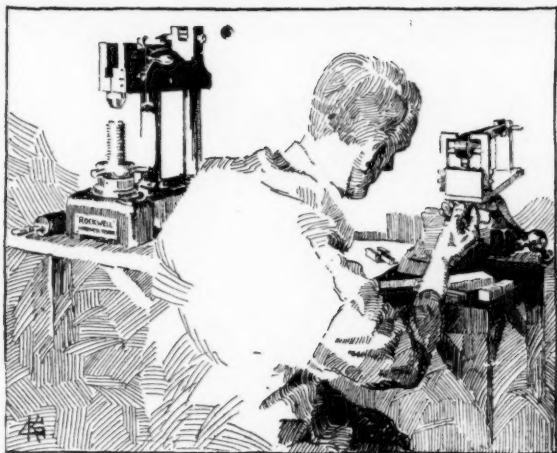
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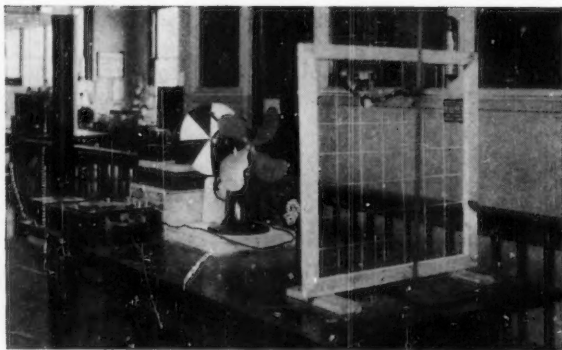
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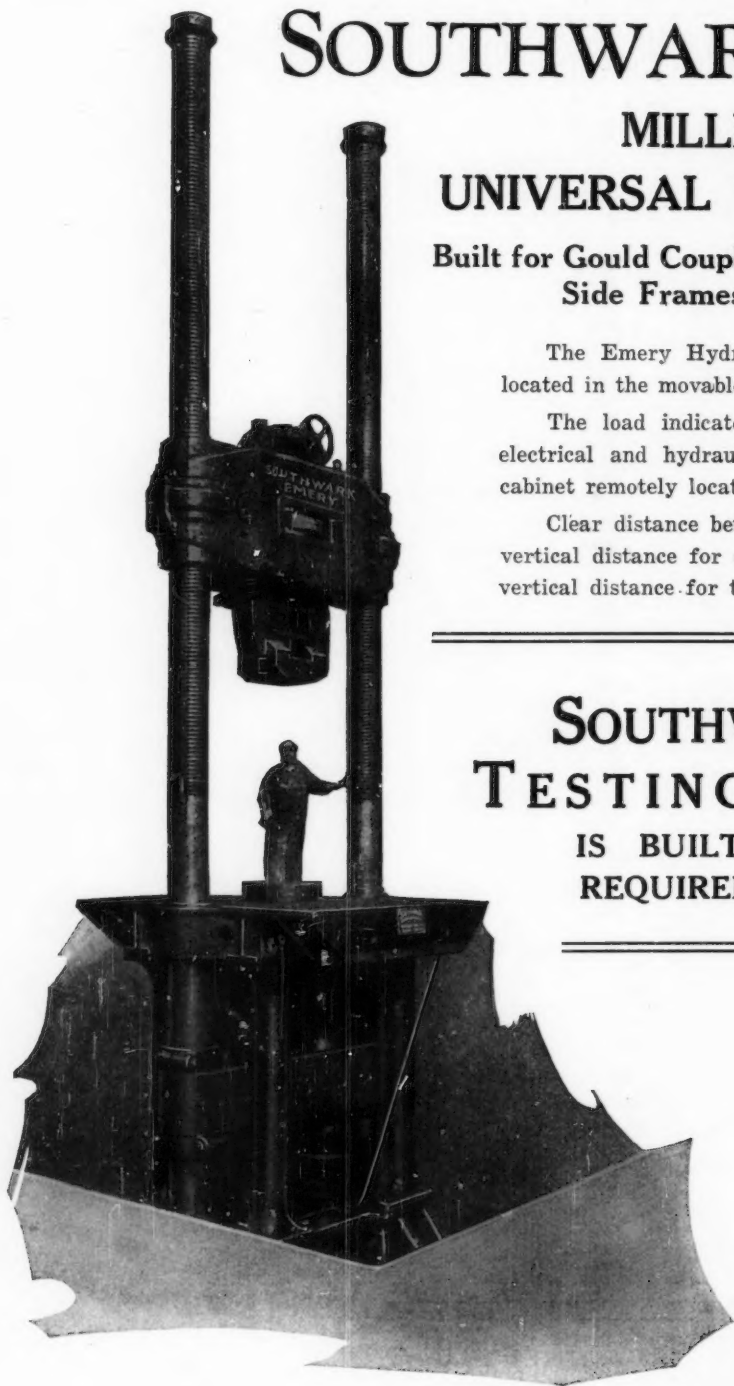
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